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351 GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP
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651 GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP
701 GVGPGVPGKA GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGVPKG
751 VPGVGPGVGP GVPGVGPGKA GAGSGAGAGS

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HITS AT: 1-780

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*  
ED Entered STN: 06 Oct 2004

L8 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2005 ACS on STN

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SEQ 1 GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP GVPGVGPGKA
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101 GVGPGVPGKA GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGVPKG
151 VPGVGPGVGP GVPGVGPGKA GAGSGAGAGS GAGAGSGAGA GSGVGVPVG
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251 GSGVGVPVG VPGVGVPKG VPGVGPGVGP GVPGVGPGKA GAGSGAGAGS
301 GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP GVPGVGPGKA
351 GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGPGVGP VPGVGPGVGP
401 GVGPGVPGKA GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGPGVGP
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501 VPGVGVPKG VPGVGPGVGP GVPGVGPGKA GAGAGSGAGS GAGAGSGAGA
551 GSGVGVPVG VPGVGVPKG VPGVGPGVGP GVPGVGPGKA GAGSGAGAGS
601 GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP GVPGVGPGKA
651 GAGSGAGAGS GAGAGSGAGA GSGVGVPVG VPGVGVPKG VPGVGPGVGP

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PRIORITY: US 2003-PV470464 20030514.

L9 ANSWER 2 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN  
2004:999537 Document No. 141:427734 Controlled release of active  
agents from personal care product compositions utilizing repeat sequence  
protein polymers. Kumar, Manoj; Mazeaud, Isabelle; Christiano, Steven  
Patrick (USA). U.S. Pat. Appl. Publ. US 2004228913 A1 20041118, 34 pp.  
(English). CODEN: USXXCO. APPLICATION: US 2004-845775  
20040514.

PRIORITY: US 2003-PV470465 20030514.

L9 ANSWER 3 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN  
2004:759607 Document No. 141:282398 Use of repeat sequence protein  
polymers in personal care compositions. Kumar, Manoj; Cuevas, William A.  
(USA). U.S. Pat. Appl. Publ. US 2004180027 A1 20040916, 50 pp.  
(English). CODEN: USXXCO. APPLICATION: US 2004-800179 20040312. PRIORITY:  
US 2003-PV454077 20030312.

L9 ANSWER 4 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN  
2003:950911 Document No. 140:14537 Synthesis of inorganic  
structures using templation and catalysis by self assembled repeat protein  
polymers. Kumar, Manoj (Dow Corning Corporation, USA; Genencor  
International, Inc.). PCT Int. Appl. WO 2003099465 A1 20031204, 27 pp. DESIGNATED  
STATES: W; AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW; RW; AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR,  
GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
(English). CODEN: PIXXD2. APPLICATION: WO 2003-US15757 20030520.  
PRIORITY: US 2002-PV381913 20020520.

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ENTER A FILE NAME OR (IGNORE):prompt

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751 VPGVGPGVGP GVPGVGPGKA GAGSGAGAGS

HITS AT: 1-780

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COST IN U.S. DOLLARS	ENTRY
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SESSION	
FULL ESTIMATED COST	246.75
246.96	

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FILE LAST UPDATED: 17 Jan 2005 (20050117/ED)

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=> s 18  
L9 4 L8

=> d 19 1-4 cbib

L9 ANSWER 1 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN  
2004:1019529 Document No. 142:2503 Conjugates of repeat sequence  
protein polymers with bioactive agents. Collier, Katherine D.; Cuevas,  
William A.; Kumar, Manoj (USA). U.S. Pat. Appl. Publ. US 2004234609 A1  
20041125, 54 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-845936  
20040514.

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ENTER A FILE NAME OR (IGNORE):prompt  
COST IN U.S. DOLLARS

TOTAL	SINCE FILE
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256.26	
INDEX 'ADISCTI', ADISINSIGHT, ADISNEWS, BIOSIS, BIOTECHNO, CANCERLIT, CAPLUS, CEN, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, EMBASE, IFIPAT, IMSDRUGNEWS, IMSPRODUCT, IPA, JICST-EPLUS, KOSMET, 'LIFESCI', MEDICONF, MEDLINE, NAPRALERT, ...' ENTERED AT 19:55:54 ON 18 JAN 2005	

78 FILES IN THE FILE LIST IN STNINDEX

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search error messages that display as 0\* with SET DETAIL OFF.

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FILE 'BIOTECHNO'
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FILE 'WPINDEX' 2 SELP47K

L10 QUE SELP47K

=> d rank
DISPLAY L# IS NOT VALID IN STNINDEX
Answer set was created in a file. Enter DISPLAY HISTORY to see where
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=> d rank
F1 4 CAPLUS
F2 4 USPATFULL
F3 2 IFIPAT
F4 2 WPIDS
F5 2 WPINDEX
F6 1 DGENE
F7 1 KOSMET
F8 1 TOXCENTER

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COST IN U.S. DOLLARS SINCE FILE
TOTAL ENTRY
SESSION 1.18
FULL ESTIMATED COST 257.44

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Cosmetics Chemists
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=> s l10
L11 15 L10
=> dup rem
ENTER L# LIST OR (END):l11
DUPLICATE IS NOT AVAILABLE IN 'DGENE, KOSMET'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L11
L12 7 DUP REM L11 (8 DUPLICATES REMOVED)
=> d l12 1-7 cbib kwic
L12 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1
2004:1019529 Document No. 142:2503 Conjugates of repeat sequence
protein
polymers with bioactive agents. Collier, Katherine D.; Cuevas,
William A.; Kumar, Manoj (USA). U.S. Pat. Appl. Publ. US 2004234609 A1
20041125, 54 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-845936
20040514. PRIORITY: US 2003-PV470464 20030514.
IT 50-81-7DP, Ascorbic acid, conjugates with silk fibroin-elastin
SELP47K 1866-31-5DP, Allyl cinnamate, conjugates with silk
fibroin-elastin SELP47K 2897-60-1DP, (3-
Glycidoxypropyl)diethoxymethylsilane, conjugates with silk
fibroin-elastin
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fibroin-elastin SELP47K 7400-08-0DP, p-Hydroxycinnamic acid,
conjugates with silk fibroin-elastin SELP47K 18171-19-2DP,
3-Chloropropylmethyldimethoxysilane, conjugates with silk
fibroin-elastin
SELP47K 27072-45-3DP, FITC, conjugates with silk fibroin-
elastin
SELP47K 27668-52-6DP, DC5700, conjugates with silk
fibroin-elastin SELP47K 31900-57-9DP, Polydimethylsiloxane,
monocarboxydecyl-terminated, conjugates with silk fibroin-
elastin
SELP47K 184870-14-2DP, (3-
Glycidoxypropyl)dimethylethoxysilane,
conjugates with silk fibroin-elastin SELP47K
RL: COS (Cosmetic use); NUU (Other use, unclassified); SPN
(Synthetic preparation); THU (Therapeutic use); BIOL (Biological study);
PREP (Preparation); USES (Uses)
(conjugates of repeat sequence protein polymers with
bioactive agents)

L12 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 2
2004:999537 Document No. 141:427734 Controlled release of active

```

agents from personal care product compositions utilizing repeat sequence protein polymers. Kumar, Manoj; Mazeaud, Isabelle; Christiano, Steven Patrick (USA). U.S. Pat. Appl. Publ. US 2004228913 A1 20041118, 34 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-845775 20040514. PRIORITY: US 2003-PV470465 20030514.

AB . . . hair care compn., a skin care compn., a nail care compn., a cosmetic composition, or an over-the-counter pharmaceutical composition. Thus, SELP47K, a silk-elastin repeat sequence protein block copolymer, was expressed in transgenic *Escherichia coli*. The glass transition temperature and tensile strength of SELP47K were determined. SELP47K could be spun into a film composed of a non-woven web of nanofilaments 20-45 nm in diameter and 100 nm.

ST controlled release repeat sequence protein polymer; silk elastin repeat block copolymer protein personal care product; cosmetic repeat sequence protein polymer SELP47K

IT Proteins  
RL: BPN (Biosynthetic preparation); COS (Cosmetic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES

(Uses) (SELP47K (silk-elastin like protein 47K); controlled release of active agents from personal care product compns. utilizing repeat sequence protein polymers)

L12 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 3 2004:759607 Document No. 141:282398 Use of repeat sequence protein polymers in personal care compositions. Kumar, Manoj; Cuevas, William A. (USA). U.S. Pat. Appl. Publ. US 2004180027 A1 20040916, 50 pp. (English).

CODEN: USXXCO. APPLICATION: US 2004-800179 20040312. PRIORITY: US 2003-PV454077 20030312.

AB . . . hair care compn., a skin care compn., a nail care compn., a cosmetic composition, or an over-the-counter pharmaceutical composition. Thus, SELP47K, a silk-elastin repeat sequence protein block copolymer, was prepared with transgenic *Escherichia coli*. The glass transition temperature and tensile strength of SELP47K were determined. SELP47K could be spun into a film composed of a non-woven web of nanofilaments 20-45 nm in diameter and 100 nm.

ST silk elastin repeat block copolymer protein personal care product; cosmetic repeat sequence protein polymer SELP47K

L12 ANSWER 4 OF 7 USPATFULL on STN 2004:18884 Synthesis of inorganic structures using templation and

catalysis by self assembled repeat protein polymers. Kumar, Manoj; Fremont, CA, UNITED STATES US 2004014186 A1 20040122 APPLICATION: US 2003-441965 A1 20030520 (10) PRIORITY: US 2002-381913P 20020520 (60) DOCUMENT TYPE: Utility; APPLICATION. CAS INDEXING IS AVAILABLE FOR THIS PATENT. DETD [0078] A genetically engineered silk-elastin copolymer SELP47K (SEQ ID NO: 19) was isolated and purified from *E. coli* bacteria. The *E. coli* containing the SELP47K (SEQ ID NO: 19) recombinant DNA was obtained from Protein Polymer Technologies, Inc. of San Diego, Calif. The SELP47K (SEQ ID NO: 19) had a general structure of: head-[(GAGAGS).sub.2(GVGVP).sub.2.3GKGPV (SEQ ID NO: 19) (GVGP).sub.4(GAGAGS).sub.2].sub.13-tail. DETD [0080] Bovine albumin serum (BSA) was purchased from Sigma Aldrich, St. Louis, Mo. A 13% solution of SELP47K (SEQ ID NO: 19) in water was prepared. A 13% solution of BSA in water was prepared. A stainless steel coupon was spin coated with the SELP47K (SEQ ID NO: 19) solution to a thickness of 2  $\mu$ m to form a SELP47K (SEQ ID NO: 19) protein film. A stainless steel coupon was spin coated with the BSA solution to a thickness. DETD . . . buffer, pH 8.0, to prepare the assay solution. The TEOS assay solution was placed on the film of both the SELP47K (SEQ ID NO: 19) and BSA and in a corner of both steel coupons where no protein film was present. DETD [0082] It was observed that silica precipitation completed within one minute on the SELP47K (SEQ ID NO: 19) film. No silica precipitation was observed on the BSA film. Additionally, no silica precipitation was observed on the uncoated corners of the steel coupons. The SELP47K (SEQ ID NO: 19) film was analyzed to confirm the silica precipitation by removing the white solid precipitated over the SELP47K (SEQ ID NO: 19) film mechanically and dissolving the precipitated silica in NaOH and reacting the solution with molybdic acid. DETD [0083] A 10-20% solution of the SELP47K (SEQ ID NO: 19) obtained in Example 1 in water was prepared. A stainless steel coupon was spin coated with the SELP47K (SEQ ID NO: 19) solution to a thickness of 2  $\mu$ m to form a SELP47K (SEQ ID NO: 19) protein film. A yttrium ethoxide solution was placed on the film of the SELP47K (SEQ ID NO: 19). Yttria precipitation was observed

immediately on the protein polymer film whereas no such precipitation was seen when dropped directly on the metal coupon having no SELP47K (SEQ ID NO: 19) protein polymer film. DETD [0101] A CaCO<sub>3</sub> inorganic structure may be formed using SELP47K (SEQ ID NO: 19). The SELP47K (SEQ ID NO: 19) will be dissolved in 1 ml of 7.5 mM CaCl<sub>2</sub>.sub.2 solution and this 1 ml SELP47K (SEQ ID NO: 19) solution in CaCl<sub>2</sub>.sub.2 will be placed into a well containing a cover-slip and the whole set. . .

L12 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 4 2004:61498 Document No. 141:301229 In vitro and in vivo evaluation of recombinant silk-elastin like hydrogels for cancer gene therapy. Megeed, Zaki; Haider, Mohamed; Li, Daqing; O'Malley, Bert W.; Cappello, Joseph; Ghandehari, Hamidreza (Department of Pharmaceutical Sciences, University of Maryland School of Pharmacy, Baltimore, MD, 21201, USA). Journal of Controlled Release, 94(2-3), 433-445 (English) 2004. CODEN: JCREEC. ISSN: 0168-3659. Publisher: Elsevier.

ST SELP47K hydrogel gene therapy antitumor

L12 ANSWER 6 OF 7 DGENE COPYRIGHT 2005 The Thomson Corp on STN DESC Silk-elastin polymer SELP47K. AB . . . temperature), and does not have any chemical modifications of the protein. This is the amino acid sequence of silk-elastin polymer SELP47K that may be used as the repeat sequence protein polymer of the invention.

L12 ANSWER 7 OF 7 KOSMET COPYRIGHT 2005 IFSCC on STN AB . . . DNA sequences. Additionally, by properly choosing and engineering microbial production strains, we can achieve high expression of silk-elastin protein polymer (SELP47K), an example of RSPP products from these genes. For example, we use microorganisms deficient in the deletion mechanisms of homologous. . . and have molecular weights generally between 30 kD and 250 kD. For example, in silk-elastin protein polymer, a RSPP named SELP47K (Unit block structure: Figure 1), individual units are composed of silk fibroin (S = GAGAGS), and elastin (E = GVGVP). In this nomenclature, SELP47K (silk elastin like protein) consists of four silk repeat peptides, seven elastin repeat peptides, and one lysine modified elastin repeat peptide. Cross-linking functionality is provided to the SELP47K by

substitution of one of the amino acids, valine, for a lysine in one individual unit of elastin. This modification. . . applications in personal care using molecular biology, gene-expression methods, and modern fermentation engineering. Specifically, an example of silk-elastin protein polymer SELP47K is reported for its ease in manufacturability and key structural and mechanical properties relevant to personal care. Moreover, personal care. . .

=> d l12 1-7 ed  
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L12 ANSWER 7 OF 7 KOSMET COPYRIGHT 2005 IFSCC on STN  
ACCESSION NUMBER: 31795 KOSMET Full-text  
FILE SEGMENT: scientific, technical  
TITLE: BIOTECHNOLOGY FOR PERSONAL CARE: A CASE  
STUDY OF  
AUTHOR: SILK-ELASTIN PROTEIN POLYMER  
BIOCHEMISTRY KUMAR M (GENENCOR INTERNATIONAL, INC.,  
CA, USA) DEPARTMENT, 925 PAGE MILL ROAD, PALO ALTO,  
SOURCE: 23 RD IFSCC INTERNATIONAL CONGRESS,  
"COSMETIC SCIENCE: REALITY", 24-27  
UNLOCKING THE . . . MYSTERY, FANTASY,  
HOTEL, OCTOBER 2004, ORLANDO, FLORIDA, USA, DOLPHIN  
ROM ONLY, WALT DISNEY WORLD (R) RESORT, POSTERS ON CD  
FEDERATION POSTER 99, 1-5, 10 REFS  
24-26 Meeting Organizer: IFSCC - INTERNATIONAL  
KINGDOM, SOCIETIES OF COSMETIC CHEMISTS, GT HOUSE,  
EMAIL: ROTHSAW ROAD, LUTON, BEDS LU1 1QX, UNITED  
COSMETIC TEL: +44-1582-726661, FAX: +44-1582-405217,  
YORK, NY ifscsc.scs@btinternet.com ; SOCIETY OF  
668-1504, CHEMISTS, 120 WALL STREET, SUITE 2400, NEW  
10005, TEL: +1-212-668-1500, FAX: +1-212-

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**DOCUMENT TYPE:** Conference; (POSTER)  
**LANGUAGE:** English  
**AN 31795 KOSMET FS** scientific, technical **full-text**  
**AB Designer Proteins** are in need as active ingredients to perform a variety of functions and to impart desired characteristics to personal care product formulations. Advances in genetic engineering offer a unique opportunity to design specific, targeted properties, and production of consistent fermentation based protein polymers with desired properties that are important to provide specific benefits. Additionally, multiple protein motifs may be engineered to provide useful characteristics for a given personal care formulation. Thus, engineering of novel proteins with well-defined modular structures and properties for desired applications in personal care formulations is possible. Repeat sequence protein polymers (RSPP), produced through molecular biological design and fermentation targeted to incorporate the needed characteristics in personal care formulation are currently being investigated at Genencor International. We will present in this poster a case study of a repeat sequence protein for possible personal care applications using silk-elastin protein polymer as an example. Biotechnology based products for personal care applications are appearing on the market place. These products fall into three main categories, (i) peptides or small proteins, (ii) unique proteins and (iii) catalytic proteins: enzymes. This poster presentation will illustrate a new concept of hybrid proteins to deliver multifunctionality in personal care formulations using genetic and protein engineering techniques. Proteins have been widely used as ingredients in personal care products to perform a variety of functions and to impart desired characteristics to product formulations. For example, proteins have been used to impart manageability and strength to hair, to moisturize skin and hair, and to provide film formation to improve the appearance of skin and hair. Proteins have also been used to provide durability properties to many personal care products. However, such proteins may not exhibit all desired characteristics when used in personal care products. For example, natural silk proteins may impart durability but may also form tight, hard fibers that are not suitable for film formation. Also, many natural proteins have a low isoelectric point, which reduces the affinity of the protein for the negatively charged skin and hair. Additionally, when more than one protein is needed to impart all desired characteristics to a given formulation, the necessity of using more than one protein may increase the cost and production time for a given personal care product. Furthermore, proteins generally have poor solubility due to high molecular weight and

hydrophobicity. Commercially available proteins, including structural proteins such as silk and collagen, are typically chemically degraded giving a diverse mixture of molecular weight fragments with variable properties. As such, these proteins are often modified chemically to enhance solubility for inclusion in personal care products. However, even chemically modified proteins may not have all desired characteristics. Thus, there remains a need in the industry for personal care compositions that have desired characteristics without chemical modification of the proteins. Natural protein polymers such as silk fibroins have been utilized to deliver personal care attributes for some time. Protein-based biopolymers<sup>1</sup>, 2 currently are made using recombinant DNA technology and fermentation. Recombinant biopolymers offer the ability to screen for desired properties utilizing the tremendous potential diversity of amino acid combinations, and fermentation allows for large-scale manufacturing with existing technology. Using recombinant DNA methods, one can precisely control the molecular weight, size, monodispersity, stereochemistry, and distribution of the biopolymer<sup>4</sup> to create composite biopolymers simulating natural protein polymers<sup>5</sup>. Bio-based protein polymers also offer sustainable production and biodegradability. Using the twenty natural amino acids, one can create a protein polymer designed for a specific function. Representative examples of natural small peptide-based RSPP and their block copolymers (repeated amino acid sequences, using the one letter code, in parentheses), will include elastin (GVGVVP, APGVGV), silk fibroin (GAGAGS), byssus (PGGG), flagelliform silk (PGGX), dragline silk (GPQQQ), GPGGY, GGGPGGS, collagen (GAPGAPGSQAGPGLQ, GAPGTPGPGQLPGSP), and keratin (AKLKLAEAKLELA). The relative environmental stability of these families of structural proteins, in combination with their biocompatibility, unique mechanical properties, and leverage for genetic control of sequence, provide the foundation on which one may exploit naturally derived RSPPs for personal care. The presence of regularly repeated sequences also implies a propensity to adopt a regular structure and self-assemble. Such new generation RSPP biomaterials will by design, harness the power of surfaces and self-assembly to direct specific orientations desirable for skin, hair, and oral care. Surfaces of these newly designed materials are precisely defined at equilibrium and resistant to contamination. This is in contrast to present materials, which are amorphous or polycrystalline, drift in structure and composition with time, and suffer from uncontrolled contamination. The key elements in molecular self-assembly, a phenomenon ubiquitous in nature, are chemical and structural compatibility through non-covalent interactions. Silk-elastin protein polymer, relevant to this study, are simple, versatile, easy to produce, and self-assemble. Producing silk-elastin protein polymer requires an understanding of the protein structure, the ability to manipulate protein polymer structure through control of amino acid sequences, and an efficient method to synthesize sequences in a reproducible and precise fashion. Genencor has technology that allows us to produce and stably maintain repetitive genes and gene products in microorganisms by specifically designing the genes to avoid recombinational deletion. This process

includes exploiting the degeneracy of the genetic code such that adjacent, identical oligopeptide blocks can be encoded by non-identical DNA sequences. Additionally, by properly choosing and engineering microbial production strains, we can achieve high expression of silk-elastin protein polymer (SELP47K), an example of RSPP products from these genes. For example, we use microorganisms deficient in the deletion mechanisms of homologous recombination: DNA-modifying functions. Using precise sequence design and gene construction, we can stably maintain recombinant genes of over 5000 base pairs in E. coli. Thus, RSPPs are the result of knowledge-based polymer design that relies on the knowledge that repeated sequences adopt specific structural motifs that provide the basis for polymer formation. RSPPs are similar to a chemically polymerized block of copolymers but do not have any heterogeneity. They are unique, defined, monodispersed, and have molecular weights generally between 30 kD and 250 kD. For example, in silk-elastin protein polymer, a RSPP named SELP47K (Unit block structure: Figure 1), individual units are composed of silk fibroin (S = GAGAGS), and elastin (E = GVGV). In this nomenclature, SELP47K (silk elastin like protein) consists of four silk repeat peptides, seven elastin repeat peptides, and one lysine modified elastin repeat peptide. Cross-linking functionality is provided to the SELP47K by substitution of one of the amino acids, valine, for a lysine in one individual unit of elastin. This modification also increases the water solubility of the polymer. This research entails the study of the properties relevant to personal care applications of silk-elastin protein polymer. Results indicate that silk-elastin protein polymer offers unique properties that are desirable for possible hair and skin care applications. In conclusion, repeat sequence protein polymers genetically designed based on the combined benefits of natural proteins have been described in this work to offer biotechnological solutions in personal care. In this work, we have illustrated that Genencor International has developed tailor-design protein polymers for applications in personal care using molecular biology, gene-expression methods, and modern fermentation engineering. Specifically, an example of silk-elastin protein polymer SELP47K is reported for its ease in manufacturability and key structural and mechanical properties relevant to personal care. Moreover, personal care application data reported demonstrates the potential of repeat sequence protein polymers as key active ingredients in upcoming future cosmetic products.

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  45 47
  0 ADJ
  988 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'CROPU'
  0 SELP
  2 ADJ
  3056 47
  2 ADJ
  6808 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'FEDRIP'
  1 SELP
  47 ADJ
  1339 47
  47 ADJ
  7272 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'FOMAD'
  0 SELP
  0 ADJ
  3919 47
  0 ADJ
  4983 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'FOREGE'
  0 SELP
  0 ADJ
  3 47
  0 ADJ
  1860 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'FROSTI'
  1 SELP

```

```

FILE 'OCEAN'
  0 "SELP"
  4 "ADJ"
  1511 "47"
  4 "ADJ"
  7147 "K"
  0 SELP ADJ 47 ADJ K
    ("SELP"(W)"ADJ"(W)"47"(W)"ADJ"(W)"K")
FILE 'PHAR'
  15 "SELP"
  5 "ADJ"
  411 "47"
  5 "ADJ"
  977 "K"
  0 SELP ADJ 47 ADJ K
    ("SELP"(W)"ADJ"(W)"47"(W)"ADJ"(W)"K")
FILE 'PROMT'
  12 "SELP"
  1123 "ADJ"
  10 "ADJS"
  1133 "ADJ"
    ("ADJ" OR "ADJS")
  190655 "47"
  1123 "ADJ"
  10 "ADJS"
  1133 "ADJ"
    ("ADJ" OR "ADJS")
  544529 "K"
  0 SELP ADJ 47 ADJ K
    ("SELP"(W)"ADJ"(W)"47"(W)"ADJ"(W)"K")
FILE 'PROUSDDR'
  0 "SELP"
  21 "ADJ"
  1034 "47"
  21 "ADJ"
  3014 "K"
  0 SELP ADJ 47 ADJ K
    ("SELP"(W)"ADJ"(W)"47"(W)"ADJ"(W)"K")
FILE 'PS'
  0 SELP
  0 ADJ
  0 47
  0 ADJ
  43 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'RDISCLOSURE'
  0 "SELP"
  3 ADJ
  822 47
  3 ADJ
  1509 K
  0 SELP ADJ 47 ADJ K
    ("SELP(W)ADJ(W)47(W)ADJ(W)K")
FILE 'SYNTHLINE'
  0 "SELP"
  0 "ADJ"

```

26 "47"  
 0 "ADJ"  
 268 "K"  
 0 SELP ADJ 47 ADJ K  
 ("SELP"(W)"ADJ"(W)"47"(W)"ADJ"(W)"K")  
 FILE 'VETB'  
 0 SELP  
 0 ADJ  
 38 47  
 0 ADJ  
 468 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'VETU'  
 0 SELP  
 4 ADJ  
 2806 47  
 4 ADJ  
 2813 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'WATER'  
 0 SELP  
 15 ADJ  
 2604 47  
 15 ADJ  
 10026 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'WPIDS'  
 9 SELP  
 603 ADJ  
 65865 47  
 603 ADJ  
 121204 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'WPIFV'  
 0 SELP  
 2 ADJ  
 194 47  
 2 ADJ  
 590 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'WPINDEX'  
 COMMAND INTERRUPTED  
 L13 QUE SELP ADJ 47 ADJ K  
 If this message appears repeatedly, please notify the Help Desk.  
 Enter "HELP STN" for information on contacting the nearest STN Help  
 Desk by telephone or via SEND in the STNMAIL file.  
 => d rank  
 NO F-NUMBERS HAD GREATER THAN ZERO HITS

=> l13  
 FILE 'ADISCTI'  
 1 SELP  
 21 ADJ  
 14511 47  
 21 ADJ  
 6261 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'ADISINSIGHT'  
 0 SELP  
 5 ADJ  
 649 "47"  
 5 ADJ  
 1098 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'ADISNEWS'  
 0 SELP  
 0 ADJ  
 2195 47  
 0 ADJ  
 515 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'BIOSIS'  
 30 SELP  
 3 SELPS  
 31 SELP  
 (SELP OR SELPS)  
 318 ADJ  
 113682 47  
 318 ADJ  
 250863 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'BIOTECHNO'  
 10 SELP  
 53 ADJ  
 19168 47  
 53 ADJ  
 84757 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'CANCERLIT'  
 2 SELP  
 1 SELPS  
 3 SELP  
 (SELP OR SELPS)  
 186 ADJ  
 28729 47  
 186 ADJ  
 23574 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'CAPLUS'  
 42 SELP

5 SELPS  
 43 SELP  
 (SELP OR SELPS)  
 216 ADJ  
 209884 47  
 216 ADJ  
 129805 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'CEN'  
 0 "SELP"  
 2 "ADJ"  
 500 "47"  
 2 "ADJ"  
 3438 "K"  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DDFB'  
 0 SELP  
 20 ADJ  
 1138 47  
 20 ADJ  
 9105 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DDFU'  
 4 SELP  
 84 ADJ  
 1 ADJS  
 85 ADJ  
 (ADJ OR ADJS)  
 4332 47  
 84 ADJ  
 1 ADJS  
 85 ADJ  
 (ADJ OR ADJS)  
 41964 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DGENE'  
 78 SELP  
 3 ADJ  
 14946 47  
 3 ADJ  
 123361 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DISSABS'  
 5 SELP  
 91 ADJ  
 1 ADJS  
 91 ADJ  
 (ADJ OR ADJS)  
 8344 47  
 91 ADJ  
 1 ADJS  
 91 ADJ

46984 K (ADJ OR ADJS)  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DRUGB'  
 0 SELP  
 20 ADJ  
 1138 47  
 20 ADJ  
 9105 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DRUGMONOG2'  
 0 SELP  
 1 ADJ  
 11005 47  
 1 ADJ  
 1778 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'DRUGU'  
 4 SELP  
 127 ADJ  
 1 ADJS  
 127 ADJ  
 (ADJ OR ADJS)  
 45875 47  
 127 ADJ  
 1 ADJS  
 127 ADJ  
 (ADJ OR ADJS)  
 64385 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'EMBAL'  
 0 SELP  
 4 ADJ  
 1226 47  
 4 ADJ  
 1849 K  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 FILE 'EMBASE'  
 16 "SELP"  
 2 "SELPS"  
 17 "SELP"  
 ("SELP" OR "SELPS")  
 322 "ADJ"  
 77579 "47"  
 322 "ADJ"  
 245648 "K"  
 0 SELP ADJ 47 ADJ K  
 ("SELP(W)ADJ(W)47(W)ADJ(W)K")  
 -----User Break-----  
 9 SELP  
 SEARCH ENDED BY USER



2 SELP  
 9383 47  
 32359 K  
 0 SELP (W) 47 (W) K  
FILE 'ALUMINUM'  
 0 SELP  
 1047 47  
 12138 K  
 0 SELP (W) 47 (W) K  
FILE 'ANABSTR'  
 0 SELP  
 3245 47  
 10535 K  
 0 SELP (W) 47 (W) K  
FILE 'ANTE'  
 0 SELP  
 283 47  
 2838 K  
 0 SELP (W) 47 (W) K  
FILE 'APOLLIT'  
 1 SELP  
 1 SELPS  
 1 SELP  
 (SELP OR SELPS)  
 463 47  
 7520 K  
 0 SELP (W) 47 (W) K  
FILE 'AQUALINE'  
 0 SELP  
 1420 47  
 16002 K  
 0 SELP (W) 47 (W) K  
FILE 'AQUASCI'  
 1 SELP  
 4538 47  
 22878 K  
 0 SELP (W) 47 (W) K  
FILE 'AQUIRE'  
 0 SELP  
 781 47  
 8764 K  
 0 SELP (W) 47 (W) K  
FILE 'BABS'  
 1 SELP  
 4355 47  
 80661 K  
 0 SELP (W) 47 (W) K  
FILE 'BIBLIODATA'  
 4 SELP  
 7028 47  
 12062 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOBUSINESS'  
 0 SELP  
 2215 47  
 11842 K  
 0 SELP (W) 47 (W) K

FILE 'CAOLD'  
 0 SELP  
 66 47  
 25759 K  
 0 SELP (W) 47 (W) K  
FILE 'CAPLUS'  
 42 SELP  
 5 SELPS  
 43 SELP  
 (SELP OR SELPS)  
 209914 47  
 1298215 K  
 2 SELP (W) 47 (W) K  
FILE 'CASREACT'  
 0 SELP  
 8743 47  
 13893 K  
 0 SELP (W) 47 (W) K  
FILE 'CBNB'  
 0 SELP  
 9483 47  
 3777 K  
 0 SELP (W) 47 (W) K  
FILE 'CEABA-VTB'  
 0 SELP  
 2021 47  
 32740 K  
 0 SELP (W) 47 (W) K  
FILE 'CEN'  
 0 SELP  
 500 47  
 3438 K  
 0 SELP (W) 47 (W) K  
FILE 'CERAB'  
 0 SELP  
 892 47  
 20435 K  
 0 SELP (W) 47 (W) K  
FILE 'CHEMINFORMRX'  
 0 SELP  
 248 47  
 410 K  
 0 SELP (W) 47 (W) K  
FILE 'CHEMSAFE'  
 0 SELP  
 0 47  
 0 K  
 0 SELP (W) 47 (W) K  
FILE 'CIN'  
 0 SELP  
 9203 47  
 20607 K  
 0 SELP (W) 47 (W) K  
FILE 'CIVILENG'  
 0 SELP  
 795 47  
 8131 K

FILE 'BIOCOMMERCE'  
 0 SELP  
 203 47  
 2113 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOENG'  
 6 SELP  
 3381 47  
 13339 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOSIS'  
 30 SELP  
 3 SELPS  
 31 SELP  
 (SELP OR SELPS)  
 113682 47  
 250863 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOTECHARS'  
 6 SELP  
 2 SELPS  
 7 SELP  
 (SELP OR SELPS)  
 5374 47  
 8074 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOTECHDS'  
 6 SELP  
 2 SELPS  
 7 SELP  
 (SELP OR SELPS)  
 5374 47  
 8074 K  
 0 SELP (W) 47 (W) K  
FILE 'BIOTECHNO'  
 10 SELP  
 19168 47  
 84757 K  
 0 SELP (W) 47 (W) K  
FILE 'BLldb'  
 0 SELP  
 9 47  
 741 K  
 0 SELP (W) 47 (W) K  
FILE 'CABA'  
 7 SELP  
 56599 47  
 110680 K  
 0 SELP (W) 47 (W) K  
FILE 'CANCERLIT'  
 2 SELP  
 1 SELPS  
 3 SELP  
 (SELP OR SELPS)  
 28729 47  
 23574 K  
 0 SELP (W) 47 (W) K

0 SELP (W) 47 (W) K  
FILE 'COMPINDEX'  
 11 SELP  
 22653 47  
 246002 K  
 0 SELP (W) 47 (W) K  
FILE 'COMPUAEB'  
 2 SELP  
 174 47  
 8288 K  
 0 SELP (W) 47 (W) K  
FILE 'COMPUSCIENCE'  
 0 SELP  
 491 47  
 19916 K  
 0 SELP (W) 47 (W) K  
FILE 'CONFSCI'  
 0 SELP  
 173 47  
 6966 K  
 0 SELP (W) 47 (W) K  
FILE 'COPPERLIT'  
 0 SELP  
 63 47  
 2207 K  
 0 SELP (W) 47 (W) K  
FILE 'CORROSION'  
 0 SELP  
 186 47  
 2637 K  
 0 SELP (W) 47 (W) K  
FILE 'CROPB'  
 0 SELP  
 45 47  
 988 K  
 0 SELP (W) 47 (W) K  
FILE 'CROPU'  
 0 SELP  
 3056 47  
 6808 K  
 0 SELP (W) 47 (W) K  
FILE 'CSNB'  
 0 SELP  
 342 47  
 263 K  
 0 SELP (W) 47 (W) K  
FILE 'DDFB'  
 0 SELP  
 1138 47  
 9105 K  
 0 SELP (W) 47 (W) K  
FILE 'DDFU'  
 4 SELP  
 4332 47  
 41964 K  
 0 SELP (W) 47 (W) K  
FILE 'DETERM'

0 SELP	FILE 'ENERGY'
10 47	3 SELP
7833 K	17005 47
0 SELP (W) 47 (W) K	231841 K
FILE 'DGENE'	0 SELP (W) 47 (W) K
78 SELP	FILE 'ENTEC'
14946 47	0 SELP
123361 K	1454 47
0 SELP (W) 47 (W) K	16812 K
FILE 'DISSABS'	0 SELP (W) 47 (W) K
5 SELP	FILE 'ENVIROENG'
8344 47	0 SELP
46984 K	765 47
0 SELP (W) 47 (W) K	5287 K
FILE 'DKF'	0 SELP (W) 47 (W) K
0 SELP	FILE 'EPFULL'
434 47	3 SELP
1259 K	43489 47
0 SELP (W) 47 (W) K	33674 K
FILE 'DPCI'	0 SELP (W) 47 (W) K
0 SELP	FILE 'ESBIOBASE'
59 47	9 SELP
1446 K	37221 47
0 SELP (W) 47 (W) K	109510 K
FILE 'DRUGB'	0 SELP (W) 47 (W) K
0 SELP	FILE 'FOMAD'
1138 47	0 SELP
9105 K	3919 47
0 SELP (W) 47 (W) K	4983 K
FILE 'DRUGU'	0 SELP (W) 47 (W) K
4 SELP	FILE 'FORIS'
45875 47	0 SELP
64385 K	70 47
0 SELP (W) 47 (W) K	156 K
FILE 'ELCOM'	0 SELP (W) 47 (W) K
3 SELP	FILE 'FRANCEPAT'
277 47	2 SELP
10488 K	2277 47
0 SELP (W) 47 (W) K	2250 K
FILE 'EMA'	0 SELP (W) 47 (W) K
0 SELP	FILE 'FRFULL'
633 47	9 SELP
7637 K	51984 47
0 SELP (W) 47 (W) K	75264 K
FILE 'EMBAL'	0 SELP (W) 47 (W) K
0 SELP	FILE 'FROSTI'
1264 47	1 SELP
1897 K	519 47
0 SELP (W) 47 (W) K	3074 K
FILE 'EMBASE'	0 SELP (W) 47 (W) K
16 SELP	FILE 'FSTA'
2 SELPS	0 SELP
17 SELP	7420 47
(SELP OR SELPS)	19075 K
77579 47	0 SELP (W) 47 (W) K
245648 K	FILE 'GENBANK'
0 SELP (W) 47 (W) K	604 SELP

476285 47	0 SELP (W) 47 (W) K
4092470 K	FILE 'INVESTEXT'
0 SELP (W) 47 (W) K	16 SELP
FILE 'GEOREF'	1191643 47
0 SELP	890246 K
2530 47	0 SELP (W) 47 (W) K
55368 K	FILE 'IPA'
0 SELP (W) 47 (W) K	2 SELP
FILE 'HEALSAFE'	3165 47
0 SELP	2276 K
773 47	0 SELP (W) 47 (W) K
1614 K	FILE 'ITRD'
0 SELP (W) 47 (W) K	0 SELP
FILE 'ICONDA'	953 47
0 SELP	3779 K
282 47	0 SELP (W) 47 (W) K
3007 K	FILE 'JAPIO'
0 SELP (W) 47 (W) K	3 SELP
FILE 'IFICL3'	38275 47
0 SELP	64641 K
69 47	0 SELP (W) 47 (W) K
35 K	FILE 'JICST-EPLUS'
0 SELP (W) 47 (W) K	5 SELP
FILE 'IFIPAT'	13724 47
15 SELP	43949 K
161333 47	0 SELP (W) 47 (W) K
107027 K	FILE 'KOREAPAT'
0 SELP (W) 47 (W) K	2 SELP
FILE 'IMSDRUGNEWS'	2775 47
0 SELP	2455 K
126 47	0 SELP (W) 47 (W) K
157 K	FILE 'KOSMET'
0 SELP (W) 47 (W) K	0 SELP
FILE 'INFODATA'	155 47
0 SELP	320 K
100 47	0 SELP (W) 47 (W) K
1084 K	FILE 'LIFESCI'
0 SELP (W) 47 (W) K	0 SELP
FILE 'INIS'	5 SELP
0 SELP	14628 47
10304 47	84226 K
189135 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'LISA'
FILE 'INPADOC'	0 SELP
14 SELP	400 47
7499 47	2313 K
25352 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'MATBUS'
FILE 'INSPEC'	0 SELP
11 SELP	1013 47
18240 47	1345 K
428325 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'MATH'
FILE 'INSPHYS'	0 SELP
0 SELP	4855 47
1308 47	156278 K
35032 K	0 SELP (W) 47 (W) K
FILE 'MATHDI'	

0 SELP	3013 47
61 47	4850 K
1538 K	0 SELP (W) 47 (W) K
FILE 'MECHENG'	FILE 'PASCAL'
0 SELP	9 SELP
1031 47	1 SELPS
9932 K	9 SELP
0 SELP (W) 47 (W) K	(SELP OR SELPS)
FILE 'MEDLINE'	60560 47
18 SELP	411194 K
2 SELPS	0 SELP (W) 47 (W) K
19 SELP	FILE 'PATDD'
(SELP OR SELPS)	0 SELP
125909 47	59 47
247145 K	1867 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'METADEX'	FILE 'PATDPA'
0 SELP	1 SELP
3306 47	11757 47
51292 K	17073 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'NAPRAALERT'	FILE 'PATDPAFULL'
0 SELP	35 SELP
177 47	162973 47
2198 K	159653 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'NIOSHTIC'	FILE 'PCTFULL'
0 SELP	81 SELP
2202 47	8 SELPS
1442 K	87 SELP
0 SELP (W) 47 (W) K	(SELP OR SELPS)
FILE 'NLDB'	227738 47
3 SELP	257925 K
73342 47	1 SELP (W) 47 (W) K
160886 K	FILE 'PCTGEN'
0 SELP (W) 47 (W) K	0 SELP
FILE 'NTIS'	1 47
5 SELP	0 K
1 SELPS	0 SELP (W) 47 (W) K
5 SELP	FILE 'PHARMAML'
(SELP OR SELPS)	0 SELP
6590 47	1037 47
51773 K	177 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'NUTRACEUT'	FILE 'PHIC'
0 SELP	0 SELP
92 47	3 47
70 K	17 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'OCEAN'	FILE 'PHIN'
0 SELP	0 SELP
1511 47	4640 47
7147 K	5462 K
0 SELP (W) 47 (W) K	0 SELP (W) 47 (W) K
FILE 'PAPERCHEM2'	FILE 'PIRA'
0 SELP	0 SELP
	1209 47

4539 K	56857 47
0 SELP (W) 47 (W) K	146767 K
FILE 'POLLUAB'	1 SELP (W) 47 (W) K
0 SELP	FILE 'TRIBO'
1155 47	0 SELP
7795 K	67 47
0 SELP (W) 47 (W) K	720 K
FILE 'PROMT'	0 SELP (W) 47 (W) K
12 SELP	FILE 'TULSA'
190768 47	0 SELP
544783 K	1235 47
0 SELP (W) 47 (W) K	10339 K
FILE 'RAPRA'	0 SELP (W) 47 (W) K
0 SELP	FILE 'TULSA2'
1751 47	0 SELP
5352 K	57 47
0 SELP (W) 47 (W) K	5205 K
FILE 'RSWB'	0 SELP (W) 47 (W) K
0 SELP	FILE 'UFORDAT'
813 47	0 SELP
4584 K	84 47
0 SELP (W) 47 (W) K	454 K
FILE 'SCISEARCH'	0 SELP (W) 47 (W) K
17 SELP	FILE 'ULIDAT'
2 SELPS	0 SELP
18 SELP	921 47
(SELP OR SELPS)	3332 K
101232 47	0 SELP (W) 47 (W) K
582753 K	FILE 'USPATEFUL'
0 SELP (W) 47 (W) K	177 SELP
FILE 'SOLIDSTATE'	8 SELPS
1 SELP	181 SELP
342 47	(SELP OR SELPS)
25107 K	861809 47
0 SELP (W) 47 (W) K	690048 K
FILE 'SOLIS'	1 SELP (W) 47 (W) K
1 SELP	FILE 'USPATZ'
1694 47	9 SELP
3979 K	1 SELPS
0 SELP (W) 47 (W) K	9 SELP
FILE 'SYNTHLINE'	(SELP OR SELPS)
0 SELP	50250 47
26 47	46732 K
268 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'VETB'
FILE 'TEMA'	0 SELP
2 SELP	38 47
6478 47	468 K
71660 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'VETU'
FILE 'TEXTILETECH'	0 SELP
0 SELP	2806 47
483 47	2813 K
1994 K	0 SELP (W) 47 (W) K
0 SELP (W) 47 (W) K	FILE 'WATER'
FILE 'TOXCENTER'	0 SELP
11 SELP	2604 47

10026 K  
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 0 SELP  
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 9 SELP  
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 121204 K  
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 0 SELP  
 194 47  
 590 K  
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 65865 47  
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 FILE 'WSCA'  
 0 SELP  
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 6818 K  
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 FILE 'WTTEXTILES'  
 0 SELP  
 211 47  
 1351 K  
 0 SELP (W) 47 (W) K  
 L1 QUE SELP (W) 47 (W) K  
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 'FULL' IS NOT VALID IN THE CURRENT FILE  
 This option is not valid in the current file. Enter the command without the option at the arrow prompt (=>). Or, first enter the file in which the saved item created. Then enter the command and option at an arrow prompt in the file.  
 => d 11  
 DISPLAY L# IS NOT VALID IN STNINDEX  
 Answer set was created in a file. Enter DISPLAY HISTORY to see where the answer set was created. Use the File command to change to that file, then display the answer.  
 => file caplus toxcenter uspatfull pctfull  
 COST IN U.S. DOLLARS SINCE FILE  
 TOTAL ENTRY  
 SESSION 3.54  
 FULL ESTIMATED COST  
 3.75  
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nanofilaments.  
 spin-coated on to the surface of a plasma-treated wafer (hydrophilic surface) for examination. Figs. 2 and 3 illustrate microscopy pictures of SELP 47-K film showing self assembly into nanofilaments.

L3 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN  
 2004:74606 Document No. 140:309200 Thermal Analysis of Water in Silk-Elastin-like Hydrogels by Differential Scanning Calorimetry. Megeed,  
 Zaki; Cappello, Joseph; Ghandehari, Hamidreza (Department of Pharmaceutical Sciences and Greenebaum Cancer Center, University of Maryland, Baltimore, MD, 21201, USA). Biomacromolecules, 5(3), 793-797 (English) 2004. CODEN: BOMAF6. ISSN: 1525-7797. Publisher: American Chemical Society.  
 AB DSC studies showed that up to 27 wt.% nonfreezable water exists in SELP-47 K (a copolymer with four silk-like blocks and 7 elastin-like blocks in its primary repetitive sequence) hydrogels.  
 IT 7732-18-5, Water, properties 676292-96-9, SELP-47 K  
 RL: PRP (Properties)  
 (thermal anal. of water in silk-elastin-like hydrogels by DSC)

L3 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1  
 2004:61498 Document No. 141:301229 In vitro and in vivo evaluation of recombinant silk-elastin like hydrogels for cancer gene therapy. Megeed,  
 Zaki; Haider, Mohamed; Li, Daqing; O'Malley, Bert W.; Cappello, Joseph;  
 Ghandehari, Hamidreza (Department of Pharmaceutical Sciences, University of Maryland School of Pharmacy, Baltimore, MD, 21201, USA). Journal of Controlled Release, 94(2-3), 433-445 (English) 2004. CODEN: JCREEC.  
 ISSN: 0168-3659. Publisher: Elsevier.  
 IT 676292-96-9, SELP-47 K  
 RL: THU (therapeutic use); BIOL (Biological study); USES (Uses)  
 (recombinant silk-elastinlike hydrogels for cancer gene therapy)

=> s silk (W) elastin (W) polymer  
 L4 13 SILK (W) ELASTIN (W) POLYMER

=> 14 not 13  
 L5 11 L4 NOT L3

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 CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'PCTFULL' ENTERED AT 08:32:11 ON 19 JAN 2005  
 COPYRIGHT (C) 2005 Univentio

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 => dup rem 12  
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L3 ANSWER 1 OF 4 USPATFULL on STN  
 2004:232956 Use of repeat sequence protein polymers in personal care compositions.  
 Kumar, Manoj; Fremont, CA, UNITED STATES  
 Cuevas, William A., San Francisco, CA, UNITED STATES  
 US 2004180027 A1 20040916  
 APPLICATION: US 2004-800179 A1 20040312 (10)  
 PRIORITY: US 2003-454077P 20030312 (60)  
 DOCUMENT TYPE: Utility; APPLICATION.  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 DRWD [0013] FIG. 2 illustrate AFM image of SELP 47-K film showing self assembly into nanofilaments.  
 DRWD [0014] FIG. 3 illustrates SEM image of SELP 47-K film showing self assembly into nanofilaments.  
 DETD (hydrophilic) . . . on to the surface of a plasma-treated wafer (hydrophilic surface) for examination. FIGS. 2 and 3 illustrate microscopy pictures of SELP 47-K film showing self assembly into nanofilaments.

L3 ANSWER 2 OF 4 PCTFULL COPYRIGHT 2005 Univentio on STN  
 DETD Fig. 2 illustrate AFM image of SELP 47-K film showing self assembly into nanofilaments.  
 Fig. 3 illustrates SEM image of SELP 47-K film showing self assembly into

=> d 15 1-11 cbib kwic

L5 ANSWER 1 OF 11 USPATFULL on STN  
 2004:298746 Repeat sequence protein polymer active agent conjugates, methods and uses.  
 Collier, Katherine D., Hillsborough, CA, UNITED STATES  
 Cuevas, William A., San Francisco, CA, UNITED STATES  
 Kumar, Manoj, Fremont, CA, UNITED STATES  
 US 2004234609 A1 20041125  
 APPLICATION: US 2004-845936 A1 20040514 (10)  
 PRIORITY: US 2003-470464P 20030514 (60)  
 DOCUMENT TYPE: Utility; APPLICATION.  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 SUMM . . . of a repeat sequence protein polymer and at least one active agent, wherein the repeat sequence protein polymer comprises a silk elastin polymer and the at least one active agent comprises a protein or peptide, and further wherein the conjugation product comprises a. . . by B or B' in the above formula. Preferred polymers are combinations of silk units and elastin units to provide silk-elastin polymers having properties distinctive from polymers having only the same monomeric unit.  
 DETD . . . impart durability due to the silk repeating units and to impart flexibility due to the elastin repeating units. Additionally, the silk-elastin polymer may exhibit other desirable properties such as good clear film and hydrogel formation, which the individual monomeric units may not exhibit. The silk-elastin polymer may be hydrophilic and water soluble. The silk-elastin polymer may also exhibit a high cloud temperature which is desirable in heat sensitive applications. The silk-elastin polymer may have a high isoelectric point which may make the polymer more substantive to skin and hair. The silk-elastin polymer may further exhibit self assembly into fibers and films which may be desirable in some applications.  
 DETD [0079] A genetically engineered silk-elastin polymer (SELP47K) was isolated and purified from E. coli bacteria. The E. coli containing the SELP47K recombinant DNA was obtained from. . . The E. coli may be prepared in accordance with the methods described in U.S. Pat. Nos. 5,243,038 and 6,355,776. The silk-elastin polymer SELP47K had a general structure of: head-[GAGAGS].sub.2(GVGP).sub.3(GKGP(GVGP).sub.4(GAGAGS).sub.2].sub.13-tail (SEQ ID NO. 19). The polymer contained 886 amino

CLM acids, with 780 amino. . . .  
What is claimed is:  
26. The biomolecular conjugate as recited in claim 1 wherein  
the repeat sequence protein polymer comprises a silk elastin  
polymer and the at least one active agent comprises a protein  
or peptide, and further wherein the conjugation product comprises  
a.  
27. The biomolecular conjugate as recited in claim 26 wherein  
the silk elastin polymer comprises SELP47K (SEQ.  
ID. NO. 19), and the protein or peptide comprises any protein  
or peptide suitable for a desired.  
. . . of a repeat sequence protein polymer and at least one  
active agent, wherein the repeat sequence protein polymer comprises a silk  
elastin polymer and the at least one active agent  
comprises a protein or peptide, and further wherein the  
conjugation product comprises a.  
. . . of a repeat sequence protein polymer and at least one  
active agent, wherein the repeat sequence protein polymer comprises a silk  
elastin polymer and the active agent comprises a  
protein or peptide, and further wherein the conjugation  
product comprises a fusion protein.

LS ANSWER 2 OF 11 USPATFULL on STN  
2004:291832 Controlled release of active agents utilizing repeat sequence  
protein polymers.  
Kumar, Manoj, Fremont, CA, UNITED STATES  
Mazeaud, Isabelle, Chatellerault, FRANCE  
Christiano, Steven Patrick, Midland, MI, UNITED STATES  
US 2004228913 A1 20041118  
APPLICATION: US 2004-845775 A1 20040514 (10)  
PRIORITY: US 2003-470465P 20030514 (60)  
DOCUMENT TYPE: Utility; APPLICATION.  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
DETQ . . . impart durability due to the silk repeating units and  
to impart flexibility due to the elastin repeating units. Additionally,  
the silk-elastin polymer may exhibit other  
desirable properties such as good clear film and hydrogel  
formation, which the individual monomeric units may not.  
DETQ [0078] In accordance with an embodiment of the present  
invention a silk-elastin polymer SELP47K (SEQ ID NO. 19)  
may be used as the repeat sequence protein polymer of the  
present invention. The SELP47K. . . .

LS ANSWER 3 OF 11 USPATFULL on STN  
2004:166481 Slide and lock stent and method of manufacture from a  
single piece shape.

Padilla, Orlando, Laguna Niguel, CA, UNITED STATES  
Esser, Keith, San Diego, CA, UNITED STATES  
Zeltinger, Joan, Encinitas, CA, UNITED STATES  
US 2004127971 A1 20040701  
APPLICATION: US 2003-655338 A1 20030904 (10)  
PRIORITY: US 2002-408409P 20020904 (60)  
DOCUMENT TYPE: Utility; APPLICATION.  
SUMM . . . of polyarylates (L-tyrosine-derived), free acid  
polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides),  
lysine-containing poly(ester-amides), polyhydroxyalkanoates,  
poly(propylene fumarate-co-ethylene glycol) copolymer,  
polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin  
polymers, amino acid-containing polymers or corrodible calcium  
phosphate and magnesium alloys. In another preferred  
variation, the material may further comprise a.  
DETQ . . . PTDTC, poly(ester-amides), poly(propylene fumarate-  
co-ethylene glycol) copolymer (i.e., fumarate anhydrides), polyanhydride  
esters (mechanically stronger) and polyanhydrides (mechanically  
weaker), polyorthoesters, ProLastin or silk-elastin  
polymers (SELP), calcium phosphate (BIOGLASS), magnesium  
alloys, and a composition of PLA, PCL, PGA ester commercial polymers  
used singularly or in.  
CLM What is claimed is:  
. . . of polyarylates (L-tyrosine-derived), free acid  
polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides),  
lysine-containing poly(ester-amides), polyhydroxyalkanoates,  
polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin  
polymers, amino acid-containing polymers and corrodible  
calcium phosphate and magnesium alloys.

LS ANSWER 4 OF 11 USPATFULL on STN  
2003:283625 Expandable stent with sliding and locking radial  
elements.  
Steinke, Thomas A., San Diego, CA, UNITED STATES  
Koenig, Donald H., San Diego, CA, UNITED STATES  
Zeltinger, Joan, Encinitas, CA, UNITED STATES  
US 2003199969 A1 20031023  
APPLICATION: US 2003-452954 A1 20030603 (10)  
DOCUMENT TYPE: Utility; APPLICATION.  
SUMM . . . group consisting of polyarylates (L-tyrosine-

derived), free acid polyarylates, polycarbonates (L-tyrosine-derived),  
poly(ester-amides), poly(propylene fumarate-co-ethylene  
glycol) copolymer, polyanhydride esters, polyanhydrides,  
polyorthoesters, and silk-elastin polymers, calcium phosphate,  
magnesium alloys or blends thereof.  
DETQ . . . (L-tyrosine-derived), poly(ester-amides),  
poly(propylene fumarate-co-ethylene glycol) copolymer (i.e., fumarate  
anhydrides), polyanhydride esters (mechanically stronger) and  
polyanhydrides (mechanically weaker), polyorthoesters, ProLastin or silk-  
elastin polymers (SELP), calcium phosphate (BIOGLASS),  
magnesium alloys, and a composition of PLA, PCL, PGA ester  
commercial polymers used singularly or in.  
CLM What is claimed is:  
. . . the group consisting of polyarylates (L-tyrosine-derived),  
free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-  
amides), poly(propylene fumarate-co-ethylene glycol) copolymer,  
polyanhydride esters, polyorthoesters, silk-elastin  
polymers, calcium phosphate and magnesium alloys.

LS ANSWER 5 OF 11 USPATFULL on STN  
2002:192451 Protective coating for stent.  
Steinke, Tom, San Diego, CA, UNITED STATES  
US 2002103526 A1 20020801  
APPLICATION: US 2001-17341 A1 20011213 (10)  
PRIORITY: US 2000-255995P 20001215 (60)  
DOCUMENT TYPE: Utility; APPLICATION.  
DETQ . . . group consisting of polyarylates (L-tyrosine-  
derived), free acid polyarylates, polycarbonates (L-tyrosine-derived),  
poly(ester-amides), polypropylene fumarate-co-ethylene glycol)  
copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, and  
silk -elastin polymers, calcium phosphate, magnesium  
alloys or blends thereof.  
DETQ . . . (e.g., NOOC or NOOC-G), collagen, fibrin or  
fibrinogen, hyaluronic acid, hydroxy acids (i.e. lactide, glycolide,  
hydroxybutyrate), lactone-based polymers, or even silk-  
elastin polymers.

LS ANSWER 6 OF 11 USPATFULL on STN  
2001:212652 Expandable stent with sliding and locking radial  
elements.  
Steinke, Thomas A., San Diego, CA, United States  
Koenig, Donald H., San Diego, CA, United States

US 2001044651 A1 20011122  
APPLICATION: US 2000-739552 A1 20001214 (9)  
DOCUMENT TYPE: Utility; APPLICATION.  
SUMM . . . group consisting of polyarylates (L-tyrosine-  
derived), free acid polyarylates, polycarbonates (L-tyrosine-derived),  
poly(ester-amides), poly(propylene fumarate-co-ethylene  
glycol) copolymer, polyanhydride esters, polyanhydrides,  
polyorthoesters, and silk-elastin polymers, calcium phosphate,  
magnesium alloys or blends thereof.  
DETQ . . . (L-tyrosine-derived), poly(ester-amides),  
poly(propylene fumarate-co-ethylene glycol) copolymer (i.e., fumarate  
anhydrides), polyanhydride esters (mechanically stronger) and  
polyanhydrides (mechanically weaker), polyorthoesters, ProLastin or silk-  
elastin polymers (SELP), calcium phosphate (BIOGLASS),  
magnesium alloys, and a composition of PLA, PCL, PGA ester  
commercial polymers used singularly or in.  
CLM What is claimed is:  
. . . the group consisting of polyarylates (L-tyrosine-derived),  
free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-  
amides), poly(propylene fumarate-co-ethylene glycol) copolymer,  
polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin  
polymers, calcium phosphate and magnesium alloys.

LS ANSWER 7 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN  
DETQ . . . to impart durability due to the silk repeating units  
and to impart flexibility due to the elastin repeating units.  
Additionally, the  
silk-elastin polymer  
may exhibit other desirable properties such as good clear film  
and hydrogel formation,  
which the individual monomeric units may not exhibit.. The.  
silk In accordance with an embodiment of the present invention a  
-elastin polymer  
SELP47K (SEQ ID NO. 19) may be used as the repeat sequence  
protein polymer of the  
present invention. The SELP47K is a.  
LS ANSWER 8 OF 11 PCTFULL COPYRIGHT 2005 Univentio on STN

DETD . . . conjugation product of a repeat sequence protein polymer and at least one active agent, wherein the repeat sequence protein polymer comprises a silk elastin polymer and the at least one active agent comprises a protein or peptide, and further wherein the conjugation product comprises a fusion protein, . . . sequences represented by B or B' in the above formula. Preferred polymers are combinations of silk units and elastin units to provide silk-elastin polymers having properties distinctive from polymers having only the same monomeric unit. . . to impart durability due to the silk repeating units and to impart flexibility due to the elastin repeating units. Additionally, the silk-elastin polymer may exhibit other desirable properties such as good clear film and hydrogel formation, which the individual monomeric units may not exhibit. The silk-elastin polymer may be hydrophilic and water soluble. The silk-elastin polymer may also exhibit a high cloud temperature which is desirable in heat sensitive applications. The silk-elastin polymer may have a high isoelectric point which may make the polymer more substantive to skin and hair. The silk-elastin polymer may further exhibit self assembly into fibers and films which may be desirable in some applications.

**EXAMPLE I**  
A genetically engineered silk-elastin polymer (SELP47K) was isolated and purified from E. coli bacteria. The E. coli containing the SELP47K recombinant DNA was obtained from Protein Polymer. . .  
5,243,038 and 6,355,776. The silk-elastin polymer SELP47K had a general structure of head-[GAGAGS]2(GVGVP)3GKGVP(GVG)4(GAGAGS)2113-taiI (SEQ ID NO. 19).

**CLMEN 26** The biomolecular conjugate as recited in claim 1 wherein the repeat sequence protein polymer comprises a silk elastin

polyanhydride esters (mechanically stronger) and polyanhydrides (mechanically weaker), polyorthoesters, ProLastin or silk-elastin polymers (SELP), calcium phosphate (BIOGLASS), magnesium alloys, and a composition of PLA, PCL, PGA ester commercial polymers used singularly or in any mixture.

**CLMEN** . . . group consisting of polyarylates (L-tyrosine-derived), free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides), lysine-containing poly(ester-amides), polyhydroxyalcanoates, poly(propylene fumarate-co-ethylene glycol) copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin polymers, amino acid-containing polymers and corrodible calcium phosphate and magnesium alloys.

**L5 ANSWER 10 OF 11** PCTFULL COPYRIGHT 2005 Univentio on STN  
DETD . . . selected from the group consisting of polyarylates (L-tyrosine-derived), free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides), poly(propylene fumarate-co-ethylene glycol) copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, and silk-elastin polymers, calcium phosphate, magnesium alloys or blends thereof. . . polymers, chitosan (e.g., NOOC or NOOC-G), collagen, fibrin or fibrinogen, hyaluronic acid, hydroxy acids (i.e., lactide, glycolide, hydroxybutyrate), lactone-based polymers, or even silk-elastin polymers.

**L5 ANSWER 11 OF 11** PCTFULL COPYRIGHT 2005 Univentio on STN  
DETD . . . selected from the group consisting of polyarylates (L-tyrosine-derived), free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides), poly(propylene fumarate-co-ethylene glycol) copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, and silk-elastin polymers, calcium phosphate, magnesium alloys or blends thereof. . . polycarbonates (L-tyrosine-derived), poly(ester-amides), poly(propylene

polymer and the at least one active agent comprises a protein or peptide, and further wherein the conjugation product comprises a fusion protein.

**27** The biomolecular conjugate as recited in claim 26 wherein the silk elastin polymer comprises SELP47K (SEQ. ID. NO. 19), and the protein comprises any protein or peptide suitable for a desired application.

active product of a repeat sequence protein polymer and at least one active agent, wherein the repeat sequence protein polymer comprises a silk elastin polymer and the at least one active agent comprises a protein or peptide, and farther wherein the conjugation product comprises a fusion.

conjugation product of a repeat sequence protein polymer and at least one active agent, wherein the repeat sequence protein polymer comprises a silk elastin polymer and the active agent comprises a protein or peptide, and further wherein the conjugation product comprises a fusion protein.

**L5 ANSWER 9 OF 11** PCTFULL COPYRIGHT 2005 Univentio on STN

DETD . . . the group consisting of polyarylates (L-tyrosine-derived), free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides), lysine-containing poly(ester-amides), polyhydroxyalcanoates, poly(propylene fumarate-co-ethylene glycol) copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin polymers, amino acid-containing polymers or corrodible calcium phosphate and magnesium alloys. In another preferred variation, the material may further comprise a biologically responsive.

including PDPEC or PDTEQ, poly(ester-amides), poly(propylene fumarate-co-ethylene glycol) copolymer (i.e., fumarate anhydrides),

fumarate-co-ethylene glycol) copolymer (i.e., fumarate anhydrides), polyanhydride esters (mechanically stronger) and polyanhydrides (mechanically weaker), polyorthoesters, ProLastin or silk-elastin polymers (SELP), calcium phosphate (BIOGLASS), magnesium alloys, and a composition of PLA, PCL, PGA ester commercial polymers used singularly or in any mixture.

**CLMEN** . . . selected from the group consisting of polyarylates (L-tyrosine-derived), free acid polyarylates, polycarbonates (L-tyrosine-derived), poly(ester-amides), poly(propylene fumarate-co-ethylene glycol) copolymer, polyanhydride esters, polyanhydrides, polyorthoesters, silk-elastin polymers, calcium phosphate and magnesium alloys.

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SESSION                         ENTRY
FULL ESTIMATED COST          17.43
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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) SINCE FILE
TOTAL

SESSION                         ENTRY
CA SUBSCRIBER PRICE           0.00
0.73

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